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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte TOSHIAKI FUJII, OSAMU HORITA, KOJI OHYAMA,
TOSHIYA NAKAYAMA, FUMIO SAKIYA, and MINEO KINPARA

Appeal 2009-002864
Application 10/036,802
Technology Center 3600

Decided: October 26, 2009

Before: WILLIAM F. PATE, III, JENNIFER D. BAHR, and LINDA E.
HORNER, *Administrative Patent Judges.*

BAHR, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Toshiaki Fujii, et al. (Appellants) appeal under 35 U.S.C. § 134 (2002) from the Examiner's decision rejecting claims 9, 11-15, and 24-34. Claims 1-8, 10, and 16-23 have been canceled. We have jurisdiction over this appeal under 35 U.S.C. § 6 (2002).

The Invention

Appellants' claimed invention is directed to a loader in a low-cleanliness room for loading and unloading containers of semiconductors into and out of a high-cleanliness room. A wall 105 separates a high-cleanliness room from a low-cleanliness room, with an opening portion 112 of the wall 105 generally closed by door 104 of a loader, which is located in the low-cleanliness room. Spec. 13:16-20, fig. 2. A clean, air-tight container 102 of semiconductors is mounted on a stage 107 of the loader. Spec. 14:3-14, fig. 2. The cover 103 of container 102 and the loader door 104 are unified (such as by clamping) and then are together lowered by driver 106, such that the contents of the container 102 are exposed to the high-cleanliness room. Spec. 15:6-9, 15-21, fig. 3A.

Claim 9, reproduced below, is illustrative of the claimed invention.

9. A loader disposed in a low cleanliness room in a border between the low cleanliness room and a high cleanliness room having a higher pressure than the low cleanliness room, the loader comprises:

a movable stage positioned in the low cleanliness room for mounting a container in such a manner that the entire container remains in the low cleanliness room, and a cover to be removed from a main body of the container is positioned to

face the high cleanliness room, the movable stage being horizontally movable relative to a wall that separates the low cleanliness room from the high cleanliness room;

an opening portion in the wall through which a dust free article is transported between an inside of the container and the high cleanliness room;

a door for opening and closing the opening portion;

a unifying means for unifying the cover of the container and the door in the low cleanliness room;

a driving apparatus positioned in the low cleanliness room for moving the cover and the door together within the loader to simultaneously open and close the opening portion and the container; and

a gap provided all around the door between the opening portion and the door through which air flows out from the high cleanliness room to the lower cleanliness room to prevent dust flowing into the high cleanliness room.

The Rejection

The Examiner relies upon the following as evidence of unpatentability:

| | | |
|-------------|--------------|---------------|
| Muka | US 5,613,821 | Mar. 25, 1997 |
| Briner | US 5,810,537 | Sep. 22, 1998 |
| Mastroianni | US 6,068,668 | May 30, 2000 |

Appeal 2009-002864
Application 10/036,802

Appellants seek review of the Examiner's rejections under 35 U.S.C. § 103(a) of claims 9, 11-15, and 24-34 as unpatentable over Muka, Briner, and Mastroianni.

SUMMARY OF DECISION

We AFFIRM.

ISSUE

The Examiner rejected independent claim 9 with a proposed combination of Muka, Briner, and Mastroianni. Ans. 3-5. In relevant part, the Examiner equated Muka's load lock 22 with the claimed "high cleanliness room," and Muka's mini-environment 58 with the claimed "low cleanliness room." *Id.* Appellants argue that Muka's mini-environment 58 is not a low-cleanliness room because it is a high-cleanliness room. Appeal Br. 6-11. Appellants do not present any separate arguments for claims 11-15 and 24-34. Appeal Br. 11-12. Therefore, claims 11-15 and 24-34 stand or fall with claim 9. 37 C.F.R. § 41.37(c)(1)(vii) (2008). Therefore, the dispositive issue is whether Muka's mini-environment 58 describes a "low cleanliness room" as required by claim 9.

FACTS PERTINENT TO THE ISSUES

(FINDINGS-OF-FACT (FF))

FF1 The Examiner found that Muka describes a container (carrier 32) mountable on a loader (platform 60) in a low-cleanliness room (mini-environment 58) facing a high-cleanliness room (load lock 22 defining load lock chamber 76), and a cover (42) and door (80) that

are unified and lowered in the low-cleanliness room (via actuator 122). Ans. 3-4. We find that the Examiner's position is supported by Muka at col. 5, ll. 25-35 (carrier 32), ll. 51-57 (mini-environment 58), col. 6, ll. 22-29 (load lock 22), col. 8, ll. 25-31 (actuator 122), col. 2, ll. 32-37 (noting that it is typical that the doors on carriers and ports unify to "sandwich" particles from the outside), and at figs. 2, 4, 8.

FF2 The Examiner found that the mini-environment 58 of Muka is less clean than the load lock 22 because the mini-environment is exposed to the outside air via opening 72 whenever carrier 32 is not on platform 60, because there is no outer door for opening 72. Ans. 5-6, *see also* Muka, col. 5, l. 65 to col. 6, l. 21, (noting mini-environment 58 is only sealed from the outside when a carrier 32 is mounted to the aperture 72), col. 8, ll. 17-21, (noting that the load lock 22 is isolated *from the atmosphere* (i.e., mini-environment 58) by load lock door 80), fig. 2 (noting that particles from the ambient environment trapped on the outside of the carrier door are exposed to the mini-chamber).

FF3 Appellants admit that "one of ordinary skill in the relevant art would clearly understand that a low cleanliness room is less clean than a high cleanliness room, and that a high cleanliness room is cleaner than a low cleanliness room." Appeal Br. 11. Thus, a room that is highly clean is a low-cleanliness room, as that terminology is used by Appellants, as long as it is less clean than some other room.

FF4 Muka describes that the load lock drive mechanism 118 (defining mini-environment 58) includes a drive actuator 122 mounted at the base 124 of the mini-environment 58, which includes a shaft 123 attached to the load lock door 80. Muka, col. 8, ll. 25-31, fig. 2.

Further, coupling device 98 is mounted on the load lock door 80 with rod 102 on actuator 100. *Id.*, col. 7, ll. 33-40. One of ordinary skill in the art would recognize these elements as a source of contaminants, such as grease or dust from the friction of the shafts in the actuators.

See also Spec. 5:1-6.

FF5 Muka describes a vacuum 144 for evacuating the load lock chamber 76 and the transport chamber 28. Muka, col. 9, ll. 34-47, fig. 2. The vacuum 114 does not operate when the load lock door 80 is open, such that vacuum 144 cannot be used to evacuate the mini-environment 58. *Id.*

PRINCIPLES OF LAW

Under principles of inherency, when a reference is silent about an asserted inherent characteristic, it must be clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. *Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1268 (Fed. Cir. 1991). "Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing *may* result from a given set of circumstances is not sufficient." *In re Oelrich*, 666 F.2d 578, 581 (CCPA 1981) (emphasis added) (quoting *Hansgirg v. Kemmer*, 102 F.2d 212, 214 (CCPA 1939)).

When relying on the theory of inherency, the examiner has the initial burden of providing a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic reasonably flows from the teachings of the applied prior art. *See In re King*, 801 F.2d 1324, 1327 (Fed. Cir. 1986). Once the PTO establishes a prima

facie case of anticipation based on inherency, the burden shifts to the applicant to prove that the prior art does not possess the characteristic at issue. *See id.*

ANALYSIS

In rejecting claim 9, the Examiner found, in relevant part, that Muka describes a container mountable on a loader in a low-cleanliness room facing a high-cleanliness room, and a cover and door that are unified and lowered in the low-cleanliness room. FF1. In particular, the Examiner found that Muka's load lock is part of the high-cleanliness room, and that Muka's mini-environment is part of the low-cleanliness room because it is not completely separated from the ambient environment and therefore is less clean than the load lock. FF2.

Appellants argue that Muka's mini-environment is not a low-cleanliness room because mini-environments are known as high-cleanliness rooms, not low-cleanliness rooms. Appeal Br. 6-11. However, Appellants admit that "one of ordinary skill in the relevant art would clearly understand that a low cleanliness room is less clean than a high cleanliness room, and that a high cleanliness room is cleaner than a low cleanliness room." FF3.

Given Appellants' admission, for the claimed low-cleanliness environment of claim 9 to read on Muka's mini-environment, the mini-environment must merely be less clean than the load lock chamber. As the Examiner found, Muka's mini-environment is, at times, directly exposed to ambient air because the opening 72 of the mini-environment does not have a door. FF2. Indeed, Muka describes that load lock door 80 seals the load lock chamber from the *surrounding atmosphere*, not just the mini-

environment. *Id.* Further, the particle-contaminated side of carrier door 42 is directly exposed to the inside of the mini-environment 58 (FF2), as well as the exposed shaft 123 of actuator 122 and the articulated fingers on coupling device 98, all of which one of ordinary skill in the art would know would act as a further source of contaminants, such as grease (FF4). Finally, Muka's mini-environment does not have a means to evacuate the chamber, unlike the load lock chamber, which has a vacuum pump for cleaning the load lock chamber when it is sealed from the mini-environment. FF5. As such, mini-environment 58 is not cleaned by a vacuum like the load lock, and is exposed to several additional sources of contaminants. Therefore, the record supports the Examiner's finding that the mini-environment 58 is less clean than the load lock chamber 76.

Appellants argue that the Examiner uses "personal knowledge" to find that the mini-environment of Muka is less clean than the load lock. Appeal Br. 9-11. However, the Examiner has not relied on personal knowledge, but instead relies on the teachings of Muka. *See Ans. 7.* That is, the Examiner has made particular findings to support his finding that Muka's mini-environment is less clean than the load lock so as to shift the burden to Appellants to prove that this is not the case. *See FF1-FF2.* Appellants have not demonstrated that the Examiner's finding that the mini-environment is less clean than the load lock was in error. *See King*, 801 F.2d at 1327 (once the PTO establishes a *prima facie* case of anticipation based on inherency, the burden shifts to the applicant to prove that the prior art does not possess the characteristic at issue).

Appellants further argue that the Examiner contradicts the teachings of Muka with his personal knowledge because Muka allegedly describes the

mini-environment 58 as a "clean mini-environment." Appeal Br. 9-11, citing to Muka, col. 5, ll. 19-21 (describing the carrier 32 as substantially particle-free), 51-54 (describing mini-environment 58 as isolating the load lock 22 and the carrier 32 from the surrounding atmosphere), col. 6, ll. 22-24 (describing the load lock 22 as substantially particle-free). However, none of the citations provided describe the mini-environment as "clean," "particle-free," or anything of the sort. Instead, the carrier 32 and load lock 22 are described as being substantially particle-free, and the mini-environment 58 does nothing more than provide a sealed bridge between the two, preventing further contamination. Mini-environment 58 has been demonstrated to be, in fact, less clean than the load lock 22 or the carrier 32 (FF2, FF4, FF5), and its sole purpose is to provide a sealed connection between the two, which it can do whether or not it is as clean as the load lock 22 or carrier 32. Therefore, the Examiner's finding that Muka's mini-environment is less clean than the load lock (FF2) would not contradict any teachings of Muka.

Finally, Appellants attempt to show that mini-environments are known in the art as high-cleanliness environments. Appeal Br. 7, 19. However, even if Appellants were able to demonstrate that mini-environments generally were known in the art as "high-cleanliness rooms," that demonstration would be irrelevant as to whether the particular mini-environment 58 in Muka is less clean than the load lock 22 of Muka. The *relative* level of cleanliness between the two rooms in Muka, not the particular level of cleanliness of any one room, is relevant. *See* FF3.

CONCLUSIONS

Appellants have not shown that the Examiner erred in determining that Muka, Briner, and Mastroianni, in combination, render obvious a container cover and door unified and lowered in a low-cleanliness room. In particular, Appellants have not shown that the Examiner erred in concluding that Muka's mini-environment is a "low cleanliness room" as required by claim 9. Likewise, Appellants have not shown error in the Examiner's rejection of claims 11-15 and 24-34.

DECISION

The Examiner's decision is affirmed as to claims 9, 11-15, and 24-34.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv) (2007).

AFFIRMED

hh

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